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# EVM Systems Capability Analysis Course

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*Presented By:*

Richard Kelley, DCMA

*Date:*

*7 February, 2005*

# EVMS Capability Analysis Course

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## Course Objectives

- Provide an understanding of the EVM Systems Capability Analysis Process
- Provide an understanding of the nine process areas relating to the 32 EVMS Guidelines
- Equip students with skills and tools to effectively participate on a review team

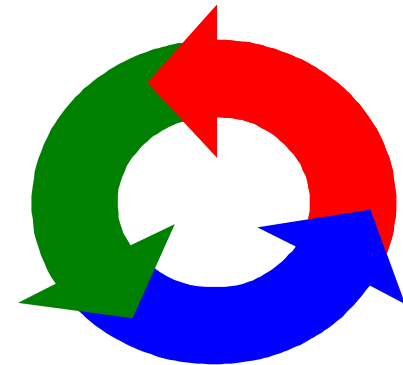
## Introduction

- Your name
- Your position/ activity
- Any EVMS training/experience?
- Have you performed EVM reviews or other types of system reviews?
- Expectations for this course?



## Course Outline

- Introduction
- Planning
- Effective Written Communication
- 9 Process Areas
- Execution
- Interview Techniques
- Closure
- Course Evaluation
- Post Review Course Evaluation



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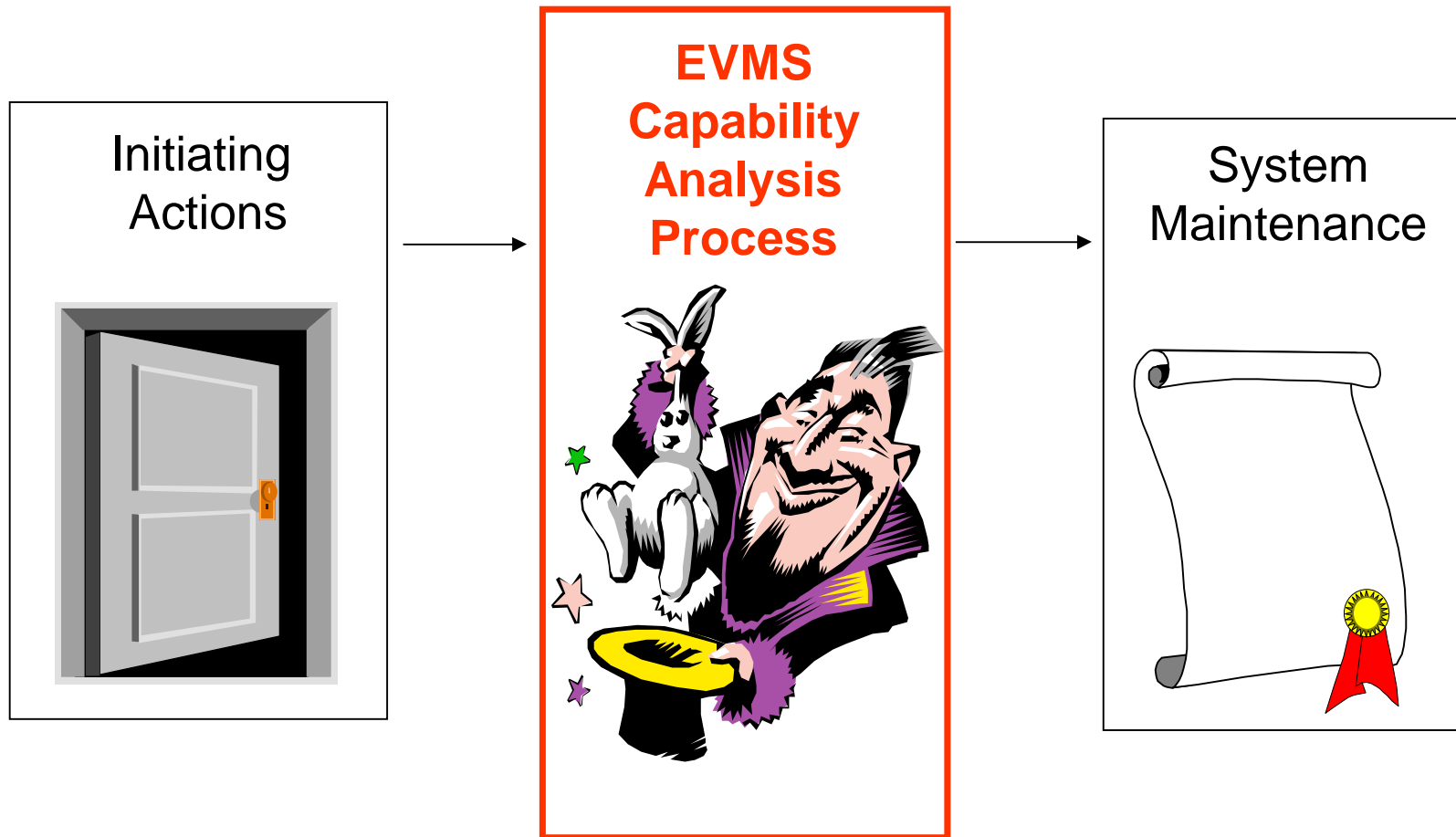
# EVM Systems Management

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## Session Objectives

- Provide an understanding of how a request for an EVMS capability analysis (review) is initiated
- Provide an overview of the EVMS capability analysis process
- Provide an understanding of how EVM Systems are maintained

# EVM Systems Management

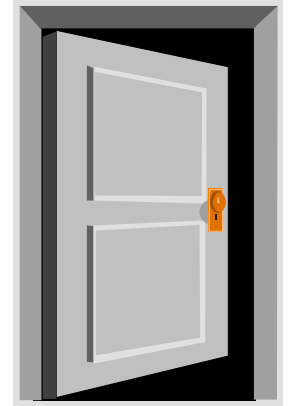


## Why did we create this process?

- Establish a process for undertaking EVMS capability analysis to ensure:
  - Documented
  - Consistency
  - Repeatability
  - Ongoing process improvement



## Examples of Initiating Actions



- 1) Contract awarded with EVMS clause
  - DFARS 252-234-7001
  - No previous assurances as to system capability
- 2) Existing contract issues arise
  - “Review for Cause”
- 3) Request from prime supplier for sub-tier supplier certification \*\*

## Initiating Actions, cont.

- 4) Supplier requests EVMS capability analysis of a Government Agency contract other than DOD (e.g., NASA) \*\*
- 5) Supplier requests EVMS capability analysis with no Current DoD/ Govt. contract \*\*
- 6) Government Agency requires EVMS capability analysis (in-house contract)\*\*

**\*\* DETERMINED ON A CASE BY CASE BASIS AS TO WHAT IS IN THE BEST INTERESTS OF THE GOVERNMENT!**

## EVM Systems Capability Analysis Process

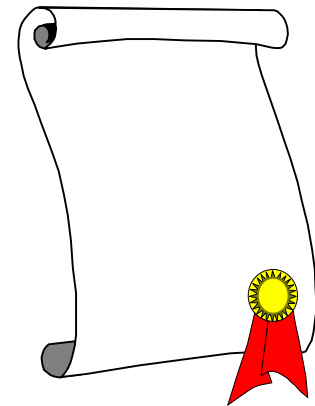
- **Planning** the Review
- **Executing** the Review
- **Closing** the Review
- Use the EVMS review flowchart as a guide through the course
- All Review activities are organized around the **nine** process areas



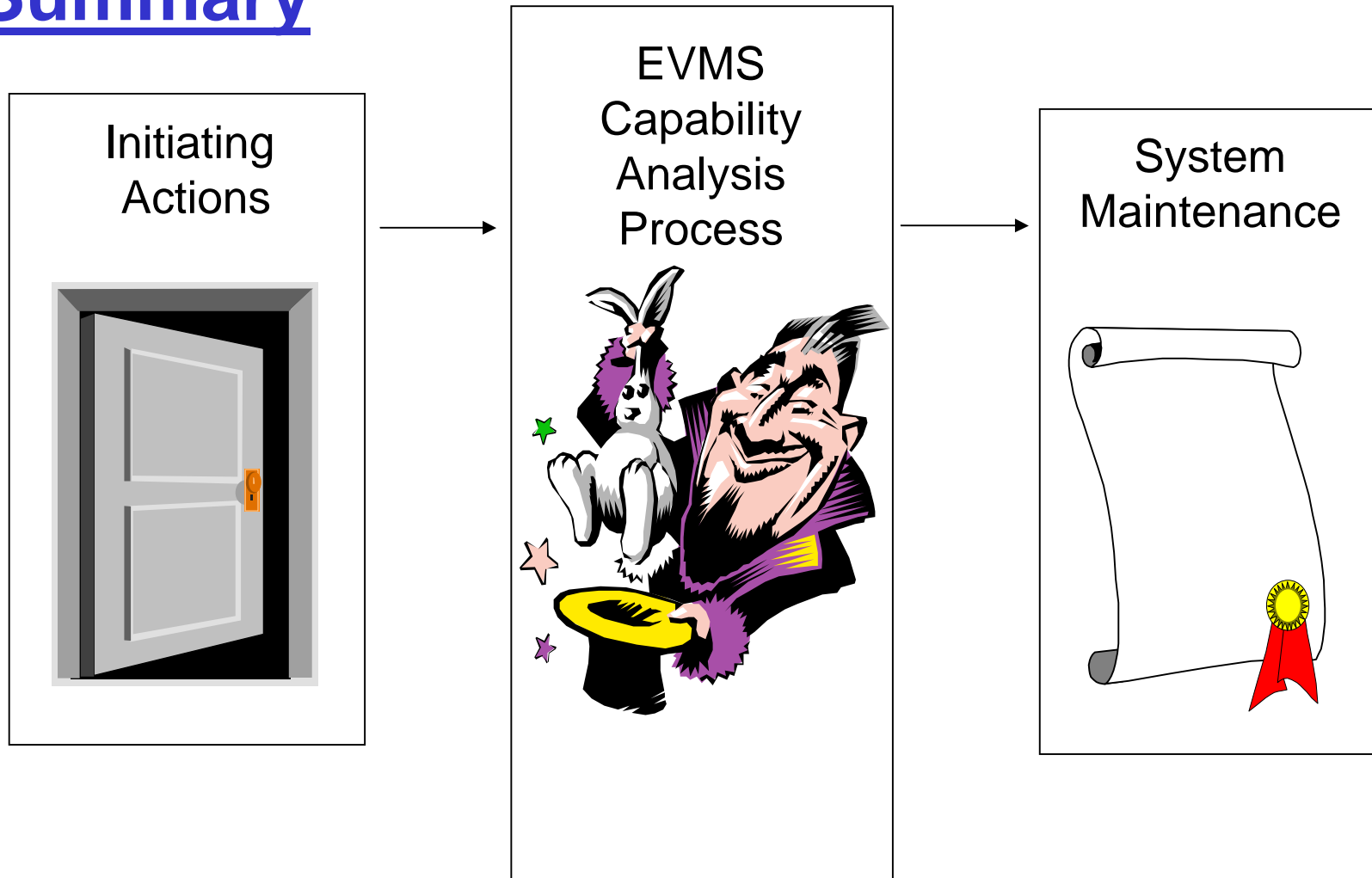
- **Review Flowchart**

## Systems Maintenance

- Existing contract with EVM requirements and DCMA contract management responsibility
  - Risk Management Plan
  - Advance Agreement
  - Joint Surveillance Plan



## Summary



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# EVMS Review Planning

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## Session Objective

The student will be able to understand the  
**Capability Analysis Planning Process**  
through the presentation of various  
templates and class exercises.



## Introduction

- Review Evaluation Processes
- Risk Assessment
- Documentation
- Review Plan
- Team Composition
- Agenda
- In-brief

## Review Scope /Evaluation Processes

- Scope of Reviews varies -
  - n Initial capability analysis review
  - n Review for cause
  
- Review Evaluation Processes
  - n Government evaluation
  - n Supplier self-evaluation
  - n Third party evaluation

## Risk Assessment

- Why perform Risk Assessment?
- Where can you get information?
  - n Supplier
  - n RAMP
  - n CMO
  - n PMO

## Risk Assessment Template (P1)

- Perform on all applicable process areas
- Risk rating (High/Moderate/Low)
  - n Probability of occurrence and consequence of failure
- Rationale – Does it make sense?

**Every** review should be  
tailored based on  
**assessed risk** of the  
system !

## **Template P1**

### **Risk Assessment**

## Documentation Request Templates P3.1 & P3.2

- **Purpose:** To allow adequate preparation
- Request depends on the type, evaluation process, risk assessment and scope of review
- Is the document required?
- Is pre-delivery required? When?
- Request appropriate number of copies

## **Template P3.1 & P3.2**

### **Documentation Request**



## *Documentation - Lessons*

Many documents cannot be used prior to arrival at the facility so:

- n *Only ask for what you really need*
- n *Keep in mind the effort required to distribute*
  - o Are they electronic or hard copy?
- n *The template is also useful during the review to allow the Review Director to manage the documents being requested*

## Review Plan Template P4

1. Introduction
2. Purpose
3. Risk Assessment
4. Review Scope
5. Documentation Request
6. Other

Appendix: Team Formation

## Template P4 Review Plan

## Review Plan Approval

- Before proceeding further with the Review Planning process, the Review Plan must be approved by the Director – EVM Center

## Team Formation Template P2

- Based upon review:
  - n Evaluation Process
  - n Scope determined by Risk Assessments
- Member Composition
  - n *(DCMA, DCAA, PMO, supplier, other customers)*
- **Purpose:** Identifies personnel to ensure a balanced team and to clearly establish areas of responsibility for the review

## Template P2 Team Formation

## Final Product

- Team Formation should be attached to approved Review Plan
- Review Plan is a stand-alone document and will form the basis for the Review Report
- Review Plan should be distributed to:
  - n *Supplier*
  - n *CMO*
  - n *Relevant PMO*
  - n *All team members*

## Team Preparation

- Understand review scope as detailed in Review Plan (P4)
- Review responsibilities as defined in Team Formation (P2)
- Where provided, review system description
- Identify any issues and notify Review Director



## Team Preparation (cont.)

- Bring EVMIG (if needed) to assist with assessing the system capability
- Review potential interview questions relating to your areas of responsibility
- Where possible, team leaders should bring a laptop and soft copies of templates

# REVIEW PLANNING

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## Template P5 Agenda Typical Activities

### Day 1

1. Review Team Meeting
2. Inbrief to supplier
3. Supplier brief
4. Documentation review & data traces to prepare for CAM interviews

### Day 2/3

1. Review Team Meeting
2. Interviews
3. End of day Review Team Meeting
4. Supplier debrief (if requested)

### Final Day

1. Team write-ups
2. Outbrief

## In-brief Charts Template P6

- Cover page
- Review Purpose
  - n Why is the review taking place
  - n Expected Outcome
- Review Scope
  - n Process areas to be reviewed
  - n Based on evaluation process and risk assessment

## In-brief (cont'd)

- Activities/Processes
  - n Interview process
  - n Documentation review
- Closure Process
  - n Corrective Action Requests (CARs)
  - n Continuous Improvement Opportunities (CIOs)
- Team Members
- Agenda

# REVIEW PLANNING

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## Summary

Based on this module, the student should be able to understand:

- Review scope and evaluation processes
- How to use risk assessment information
- Types of documents to request from the supplier
- The purpose of the Review Plan and how to write it
- How the team is formed
- The Agenda
- How to develop an inbrief

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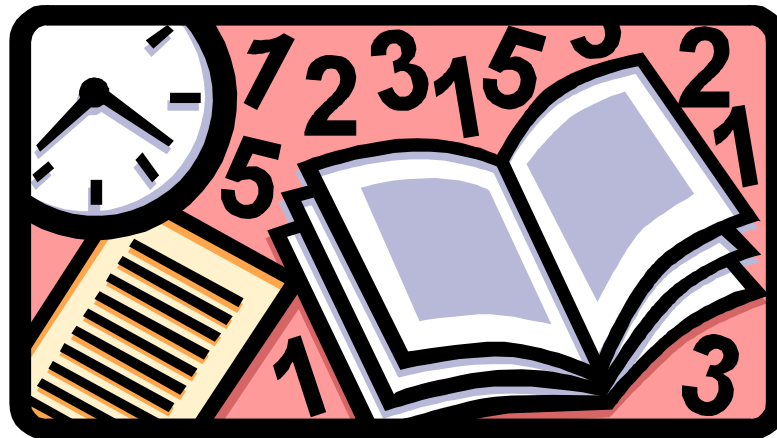
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## Effective Written Communications

## Session Objective

Provide guidance to assist participants in completing **clear, concise and accurate** review documents



## Why is this important?

- The Review Report and completed templates are the **only tangible products** of the review!
- Stakeholders rely on your documentation as the basis for decisions and actions
- EVMS Review credibility is the result of document content, quality, and professionalism



## Documents Written During Reviews

- Review Plan
- Execution Templates
- Corrective Action Request (CAR)
- Continuous Improvement Opportunity (CIO)
- Sub-Team Summary Reports
- Review Report

## Points to Consider

- Know your **audience** (who will read your work?)
- Understand the visibility and consequences (who may **rely** on your work?)
- Be aware of sensitive or proprietary data
- Be **specific**: avoid generalizations
- Identify Government and supplier **references**

## **Effective Written Communications**

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### **Points to Consider, cont.**

- Explain acronyms and terminology (watch out for “jargon”)
- Avoid opinions & emotions
- Rationale must be logical and supportable
- Give a complete picture
- Professional document - write complete sentences, check grammar and spelling

**I keep six honest serving-men  
they taught me all I knew;  
Their names are **What** and **Why** and  
**When** and **How** and **Where** and **Who**.**

*- The Elephant's Child; Rudyard Kipling (1865-1936)*

- **Don't**

- Ambiguous
- Emotional
- Subjective
- Incomplete
- Opinionated
- Illogical
- Slang
- Voluminous
- Superlatives
- Assume clarity

- **Do**

- Clear and to the point
- Professional
- Objective
- Comprehensive
- Stick to the facts
- Rational
- Correct grammar
- Concise
- Limit adjectives/ comparisons
- Peer review

## **Exercise:**

- **What is wrong with these statements?**
  - n Mr. Smith can't even control labeling WBS elements correctly!
  - n XYZ Corp doesn't get it. Their WBS isn't specific to the reporting element!
  - n The plans they're using aren't too good.
  - n This is the best system I've ever seen. XYZ is right on track!
  - n The EAC is wrong, with repeated errors.
  - n Some actuals are not included in the CPR.

## Summary

- Consider your audience and the significance of report consequences
- Provide clear, concise and objective findings
- Ensure your rationale and conclusion are supportable

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## EVMS Review Execution

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## Session Objective

Using the Execution Templates, the student will be able to effectively participate in the execution stage of the review methodology, providing a suitable foundation for the review report.

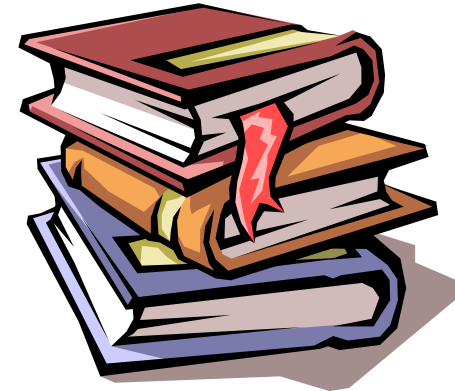
## 32 Guidelines & 9 Process Areas

- Matrix
  - n Key process areas
  - n Cross-process areas
- Team allocation
  - n Responsibility areas
  - n Consultation with cross-process areas
  - n Prevention of duplication
  - n Role of DCAA



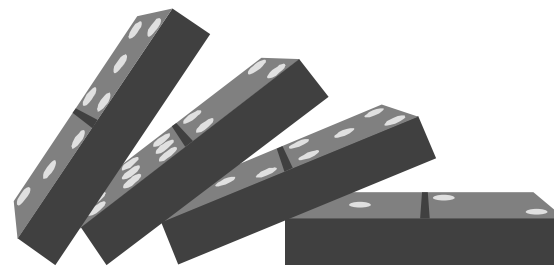
## Review Process

- Gathering Information
  - System description
  - Interviews



## Review Process (cont.)

- Gathering Information
  - **Data Traces**
    - *MR & UB*
    - *Variance Analysis*
    - *EAC documentation*
    - *Reconciliation of documents*
    - *Budget authorization*
    - *Schedule integration*



## Data Trace Exercise

- Using the “Conducting a Trace” guide determine:
  - n *How consistent are the documents?*
  - n *How many issues can be identified using the documents provided?*
    - o What further action/ information would you take or require to resolve your concerns?

## Execution Templates

- Purpose:
  - n Working papers
  - n Reference for other team members
  - n Basis for final Review Report
  - n All Templates kept as the review file
- Importance of capturing data
- Instructions for completing templates

# GUIDELINE OVERVIEW

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- **Earned Value Management is a tool**
- **ANSI/EIA – 748 – 1998**  
(American National Standards Institute/Electronic Industries Alliance)
  - *Five (5) section grouping of 32 guidelines*
    - Organization
    - Planning and Budgeting
    - Accounting
    - Analysis
    - Revisions
- **EVMIG - Nine (9) Process Areas Approach**

# GUIDELINE OVERVIEW

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## The 9 Process Areas

- ORGANIZING (E1)
- SCHEDULING (E2)
- WORK/BUDGET AUTHORIZATION (E3)
- ACCOUNTING (E4)



## The 9 Process Areas (cont.)

- INDIRECT MANAGEMENT (E5)
- MANAGERIAL ANALYSIS (E6)
- CHANGE INCORPORATION (E7)
- MATERIAL MANAGEMENT (E8)
- SUBCONTRACT MANAGEMENT (E9)

# GUIDELINE OVERVIEW

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## **EXERCISE:**

The **objective** of this exercise is to improve students' understanding of the intent and purpose of the 32 guidelines and how they relate to the process areas in the matrix.

For each element, explain:

1. **WHY** is the guideline relevant/ important to the Process Area; and
2. What is the **IMPACT** of not meeting the guideline?

- **Session aimed to provide an overview of EVMS:**
  - § *Relationship between guidelines & processes*
  - § *Introduction into dissecting the guidelines*
  - § *Understanding of why each guideline is important & the impact of non-compliance*

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# Interview Techniques

## Session Objective

- Provide guidance to team members on interview techniques

# **IMPORTANCE OF THE INTERVIEW**

**Interviews are conducted to verify that:**

- The supplier's EVMS is fully implemented
- The EVMS is being used in the management of the contract



## **Two Basic Types of Questions:**

- Open-ended
- Closed

# **IMPORTANCE OF THE INTERVIEW**

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## **Open-ended Questions**

- Broad in nature
- Used to draw out information
- Interviewee talks without restriction
- Ascertains how much they know about the subject
- Time-consuming
- Less control over the interview



# **IMPORTANCE OF THE INTERVIEW**

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## **Closed Questions**

- Limits answer options
- Structures the interview
- Questions targeted to specific areas
- Can be used to provide clarification
- Manages and limits the interview time

# **IMPORTANCE OF THE INTERVIEW**

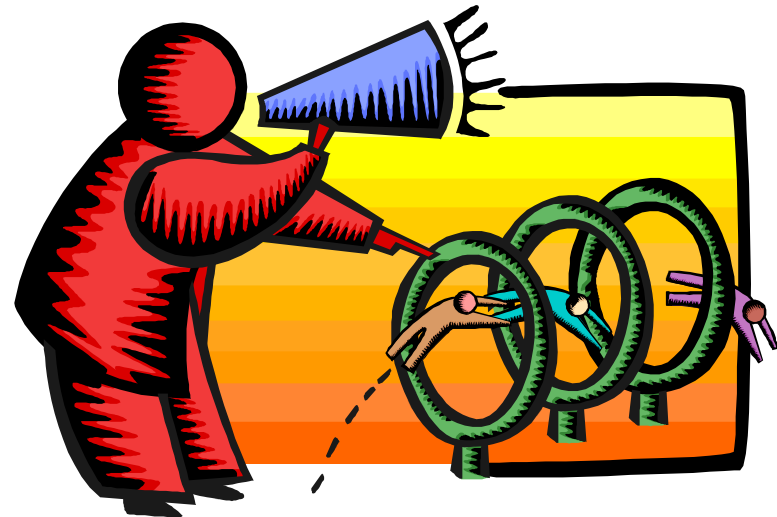
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## **Structured Interviews**

- Defined approach
- Pre-arranged set of questions
- Conducted with open and closed questions
- Logical flow of questions from answers given
- Good listening skills are utilized

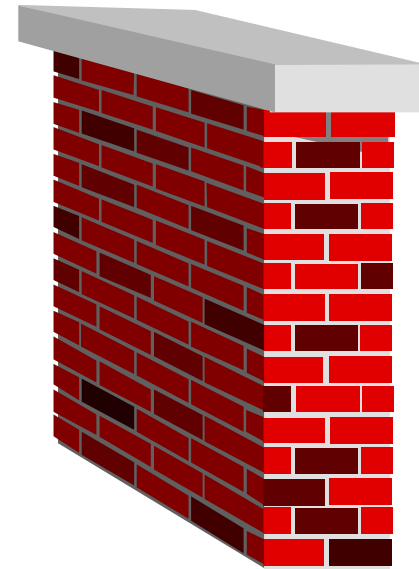
## Methods of Communication

- Verbal
- Written
- Body language
- Facial expression



## Interview Barriers

- Poor listening
- Personal bias
- Different understandings
- Bad choice of words in formulating questions/ answers



# **INTERVIEW EXERCISE**

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**Case study on interviewing  
techniques**

**Insert videotape**

## Step 1: Put the interviewees at ease



## Step 2. Explain your purpose

- Why are we here?
- What we want
- How we will get there



## Step 3. Find out what they are doing

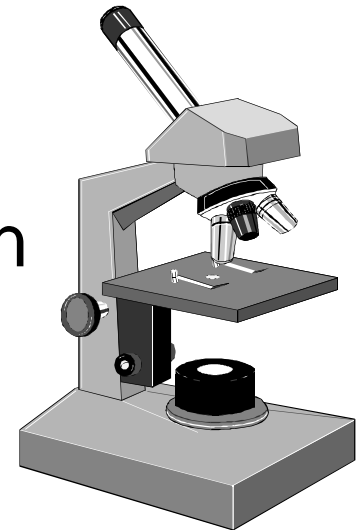


- Open-ended questions
- Closed questions
- An interview guide is a useful tool!



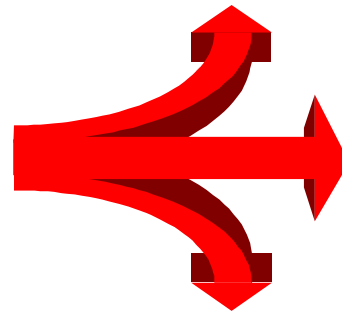
## Step 4. Analyze what they are doing

- Rephrase the answer
- Clarification/ rephrase the question
- Show us with examples
- Agreement / disagreement



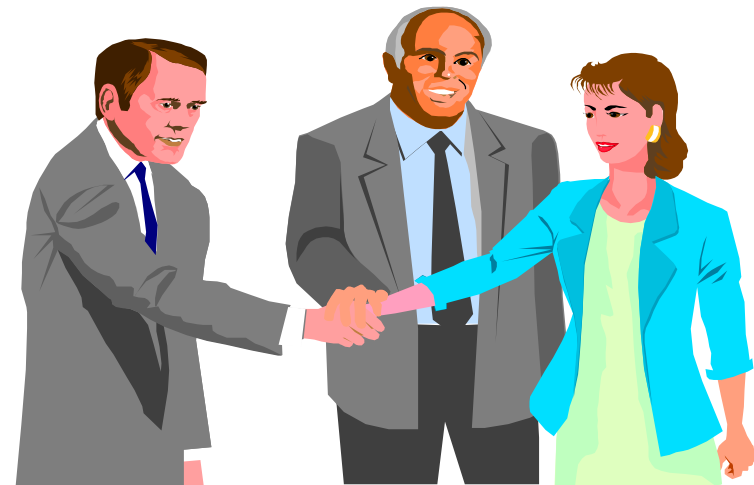
## Step 5. Make a tentative conclusion

- Communicate initial analysis
- Do not argue
- No secrets!



## Step 6. Explain the Next Step

- Thank the interviewee
- Explain closure process
  - Additional Info?
  - CAR?
  - CIO?



## Things to Remember

- Focus on the objective
- Use “Interview Guide” as a tool
  - Intent is to guide you through discussion
  - Provide a logical flow
  - Track concerns, follow-up with additional questions until you understand
- Do not read the questions

# INTERVIEW PHILOSOPHY

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## Things to Remember, cont.

- Allow questions to flow from answers
- Do not interrupt the flow to “jot down” answers
- Team approach should ensure complete coverage
- “Show me” versus “Tell me”
- Maintain control of the discussion

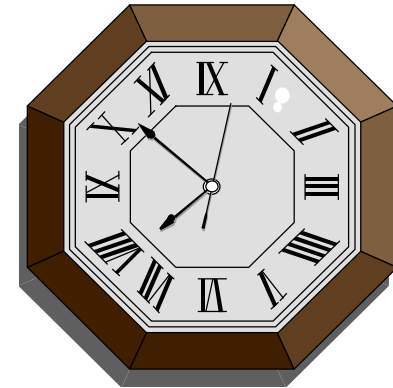


# INTERVIEW PHILOSOPHY

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## Successful Interviews

- Start on time
- Both sides limit attendance
- Government team prepared
  - Familiar with the system
  - Has a plan for the discussion
- No interruptions! (phones, pagers, etc.)
- Discuss areas of concern



## Typical Problems

- “Assistants” answer all the questions
- “Tells you” versus “Shows you”
- “I am an Engineer...not a bean counter”

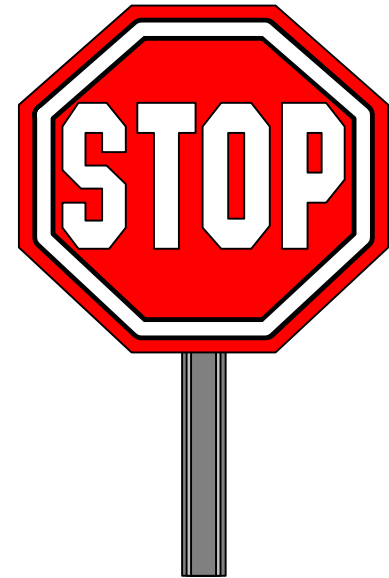


# INTERVIEW PHILOSOPHY

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## DON'T

- Exceed time allocated
- Allow the discussion to stray too far from the objective
- Ignore the documentation
- Make derogatory statements
- Argue if there is a problem





# INTERVIEW PHILOSOPHY

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## REMEMBER

The questions developed and used to determine the acceptability of the supplier EVMS are based on the contractual requirements and the documented system the supplier developed.

***No two EVM systems are the same!***

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## EVMS Review Closure

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## SESSION OBJECTIVE

To provide students with an understanding of the closure aspects of an EVMS Review.

## Closure Activities

- Corrective Action Request (CAR)
- Continuous Improvement Opportunity (CIO)
- CAR & CIO Logs
- Corrective Action Request Case Study
- Sub-Team Summary Report
- Review Outbrief
- Review Report

## Corrective Action Request (CAR) Template C1

- Communicates discrepancies to supplier
- Submit to Review Director/Team Chief for review
- Attach supporting documentation
- Findings must be clear and concise
- Major or Minor

## Continuous Improvement Opportunity (CIO) Template C3

- Do not require a response from supplier
- Description should be clear and concise
- Provide examples if available
- Review Director or Team Chief reviews

# REVIEW CLOSURE

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## CAR & CIO Logs Templates C2 & C4

- C2 logs CAR submittals
- C4 logs CIO submittals
- Administrative control
- Maintained by one team member
- Become part of review working papers
- Useful for tracking the follow-up and closure of CARs and CIOs (if applicable)



# REVIEW CLOSURE

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## Case Study

### Facts:

- During a Review for Cause on a major aircraft procurement program, currently in the EMD phase, the review team determines that it has been 10 months since the supplier has undertaken a comprehensive estimate at completion (EAC).
- The team's analysis of the November 1999 CPR indicates that 23 WBS elements out of a total of 78, show variances at completion (VAC) which are lower than their respective cumulative cost variances. One WBS element, 1490, shows an EAC value below the cumulative actual cost of work performed (ACWP).
- Further analysis of the CPR data shows a cost efficiency of 0.93 over the past 18 months and 0.98 since contract start.
- Evidence indicates that monthly updates to the EAC from the Supplier's risk management plan are not being incorporated in a timely manner.



## **Documentation:**

- The supplier's EVM System Description calls for a comprehensive update of the EAC every six months (paragraph 7.3).
- The Industry Guidelines - "A company should periodically reassess the remaining requirements on a program and maintain a most likely estimate of the costs to complete the program objectives". (EVM process discussion 3.9).

"The schedule for establishment and maintenance of EAC data depends on program management needs and overall company or corporate financial review requirements".(EVM Process discussion 3.9.1)

- EVMIG - "Periodically develop a comprehensive EAC at the control account level using all available information to arrive at the best possible estimate" (Guideline discussion 3-6.e). Comparisons must be made frequently enough to ensure project performance and resource availability will not be adversely impacted.

## **Team Assignment:**

- Based on the evidence uncovered, determine if a CAR or CIO should be written.
- Complete a CAR or CIO form.
- Complete Managerial Analysis Template, E.6 for guideline 27 considering information provided.
- When completing the template:
  - *provide as much information as possible*
  - *be clear and concise*
  - *provide examples for clarification if needed*

## Questions:

- Is the supplier in compliance with their **own EVM System**?
- Is the supplier in compliance with the **Industry Guideline**?
- Should a **Corrective Action Request** be written?
- If a CAR is written, would it be classified **major or minor**?
- How much information would be needed on the CAR for the supplier to understand what the problem is?

## Sub-Team Summary Report Template C5

- Explain scope covered by your sub-team
- Identify team findings
  - n Note the good and the bad*
  - n Provide any discussion points of importance*
  - n Record any issues that arose but were closed*
  - n Identify any deficiencies*
- Provides basis for Review Report

## Review Outbrief Template C6

- Communicates summary review results to the supplier
- Both **positive and negative** findings presented
- CARs & CIOs identified at summary level
- Presented by Review Director or Team Chief
- Outbrief is usually on the last on-site day of the review
- Outbrief overview to management may be requested prior to general audience

# REVIEW CLOSURE

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## Review Report Template C7

- Review Director is responsible for contents
- Report addresses areas identified in the review plan
- Most of content developed during the review
- Incorporates info from Sub-Team Summary Reports
- Due 30 days after all review work complete
- Individual exhibits included only as necessary
- Report submitted to Director – EVM Center

## Summary

- Corrective Action Request (CAR)
- Continuous Improvement Opportunity (CIO)
- CAR & CIO Logs
- Sub-Team Summary Report
- Review Outbrief
- Review Report

## So Where Have We Been?

- Planning the Review
- Executing the Review
- Closing the Review
- Review skills:
  - Written communication
  - Interview techniques



## Discussion/ Questions?

